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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/053,237	04/01/1998	EARL COHEN	CIS-032-B	1056

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06/10/2003

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EXAMINER

ELALLAM, AHMED

ART UNIT	PAPER NUMBER
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2662

DATE MAILED: 06/10/2003

45

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/053,237

Applicant(s)

COHEN, EARL

Examiner

AHMED ELALLAM

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 April 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,9,11,12,15-18,20,21,23,26,27,29-32 and 44-110 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 52,61-66 and 80-89 is/are allowed.
- 6) ☒ Claim(s) See Continuation Sheet is/are rejected.
- 7) ☒ Claim(s) 15,16,55,56,79,98,102 and 106 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Continuation of Disposition of Claims: Claims rejected are 1-3,9,11,12,17,18, 20,21,23, 26, 27, 30-32, 44-51, 53,54,57,59,60,67-78,90-97,99,101,102,104,105 and 107-110.

DETAILED ACTION

This is responsive to RCA filed on April 3, 2003.

Claims 1-3, 9, 11, 12, 15-18, 20, 21, 23, 26, 27, 29-32, 44-110 are pending.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 23, 32, 44, 73, 99, 103, 107 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Regarding claim 23, the specification does not adequately describe the feature of "distributing, in response to the hash function, the packet evenly among the plurality of processing engines". More specifically, the specification does not describe any steps or process for the even distribution to take place.

Regarding claim 32, the specification does not adequately describe the feature of "a hashing function that causes the packets to be mostly evenly distributed among the processing engines". More specifically, the specification does not describe any steps or process for the mostly even distribution to happen.

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Regarding claim 44, claim 44 is subjected to the same remarks as indicated in claims 23 and 33 above with reference to the feature of "determine an approximately even distribution of the packets to the route processing engine".

Regarding claim 73, is subjected to the same remarks with reference to the limitation "distributing the packets evenly among the plurality of processing engines" as indicated in claim 23.

Regarding claim 99, for the same reasons of the above, the specification does not adequately describe the feature of "random flow of first packet of a particular flow leads to substantially uniform distribution of packets being assigned to route processing engines".

Regarding claims 103 and 107, the specification does not adequately describe the feature of assigning a substantially uniform distribution of packets to route processing engine.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

3. Claims 1, 2, 9, 11, 17, 18, 20, 21, 26, 27, 29, 30, 31, 44, 45-51, 53-54, 57-59, 67-72, 74-78, 90, 95-97, 100, 101, 104, 105, 108, 109 and 110 are rejected under 35 U.S.C. 102(e) as being anticipated by Bellenger US (5,802,054).

Regarding claims 1, 11, 17, 18, 21, 26, 29, 30, 31, 44, 45, 53, 70, 71, 90, 97, 100, 101, 104, 105, 108 with reference to figures 2 and 5, Bellenger discloses a network switch (claimed router) comprising a plurality of switch nodes (claimed plurality of route processing engine), a plurality of ports (11—121) (claimed interfaces). The switch nodes also include a route table. The switch nodes also include resources to execute a routing process for frames inside the mesh. These resources include a route table memory, which has a set of accessible memory locations that store switch route data specifying routes through the plurality of switch nodes inside the mesh of the network switch for specific flows of data frames, or for data frames having specific destination addresses. Flow detect logic is coupled with the set of ports on the switch node, which monitors frames received by the set of ports and generates an identifying tag for use in accessing the route table memory. Example tags consist of a destination address at one of the data link layer or the network layer, a portion of the destination address, or hash values based on one or more fields in control segments of the frame. The tags preferably act

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as flow signatures (claimed flow indicia) to associate a frame with a sequence of frames traversing the switch. The switch node includes node route logic which is coupled with the flow detect logic, the route table memory and the set of ports. The node route logic monitors frames received by the set of ports to route a received frame for transmission out a port in the set of ports. See abstract, column 3, lines 1-24 and column 10, lines 66-67 and column 11, lines 1-20. In addition, Bellenger with reference to figure 6, further discloses that the flow detect logic executes a plurality of hash flow in parallel, a single flow is selected using the route table at the switch node, see column 14, lines 66-67 and column 15, lines 1-10.

NOTE: the term frame of Bellenger is used in a generic sense as a unit of data transferred according to a network protocol, intending to include data units called frames, packets, cells, strings, or other names. See column 3, lines 66-67 and column 4, lines 1-3.

Regarding claim 2, Bellenger with reference to figure 1, discloses a high speed Ethernet connection between the network switch and an end device (i.e.: LAN). (Corresponding to the routing system further comprising at least one fast uplink connection to an external network to accept outgoing packets from a plurality of processing engines)

Regarding claims 20 and 27, Bellenger discloses that a series of hash codes is computed for various sections of the input data stream. Which bits are or are not included in each hash calculation is determined by a stored vector in a vector register corresponding to that calculation and that in the case of an IP packet (as example) the

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hash function starts at the 96th bit to find the "0800" code following the link-layer source address, it then includes the "45" code, 32 bits of IP source, 32 bits of IP destination, skips to protocol ID 8 bits, and then at byte 20 takes the source port 16 bits and the destination port 16 bits. The result is a 64 bit random number identifying this particular IP flow. (Corresponding to the hashing is computed by logically XORing an addresses, a port, and a protocol type value).

Regarding claim 9, Bellenger discloses that the network switch is scalable. See column 2, lines 41-48.

Regarding claims 46-51, 54, 57, 58, 59, 67-69, 71, 72, 74-78, claims 46-51, 54, 57, 58, 59, 67-69, 71, 72, 74-78, have substantially the same or a combination the limitations as in the rejected claims above, thus they are rejected for the same reasons.

Regarding claim 95, claim 95 is computer readable medium implementation of rejected claims 17 and 71. Therefore claim 95 is rejected for the same reasons.

Regarding claim 96, claim 96 is rejected for similar reasons as indicated in claim 95 above.

Regarding claims 109, claim 109 is computer readable media implementation of rejected claims 101, thus it is rejected for the same reasons.

Regarding claims 110, claim 110 execution programming steps of rejected method claim 101, thus it is rejected for the same reasons.

Claim Rejections - 35 USC § 103

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The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 60 and 79 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bellenger.

Regarding claim 60, Bellenger does not explicitly disclose in case of a switch node failure, packets are allocated to other switch nodes for route processing. However bypassing an element of a switching system in case of failure is well known in the art. Examiner takes Official Notice that since such feature is well known in the art, it would have been obvious to an ordinary person of skill in the art, at the time the invention was made to provide the network switch of Bellenger with one of known node-failure bypassing methods so that the network switch of Bellenger would be reliable.

Regarding claims 91-94, claims 91-94 respectively recite compression, decompression, processing, encryption, processing routing as the type of service given by a selected routing processor. Official Notice is taken that distributed processing is well known in the art, it would have been obvious to a person of ordinary skill in the art the provide the network switch of Bellenger with the known distributed processing in a selective manner so that a variety of available services can be provided.

Claims 3 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bellenger in view of Varghese et al, US (5,905,723).

Regarding claims 3 and 12, Bellenger discloses substantially all the limitations of claim 3 and 12, except that it does not disclose that the network node uses a crossbar for switching.

However, with reference to Fig .1 and 2, Varghese discloses a scalable routing system for distributing packets in a network, comprising a crossbar switch interconnecting the network interfaces and the FE (forwarding engines).

Therefore, it would have been obvious to an ordinary person of skill in the art, at the time of the invention to have the switching of Bellenger carried out using the crossbar switching of Varghese so that routing of data would be much faster.

Allowable Subject Matter

5. Claims 52, 61-66, 80-89 are allowed.

Claims 15, 16, 55, 56, 79, 98, 102, 106 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

6. Applicant's arguments with respect to Imai reference have been considered but are moot in view of the new ground(s) of rejection.

Note: the allowability of claims 52, 30 and 78 has been withdrawn in view of Bellenger, US (5,802, 054).

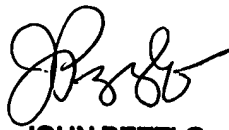
Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to AHMED ELALLAM whose telephone number is (703) 308-6069. The examiner can normally be reached on 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kizou Hassan can be reached on (703) 305-4744. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.

AHMED ELALLAM
Examiner
Art Unit 2662
June 7, 2003


JOHN PEZZLO
PRIMARY EXAMINER